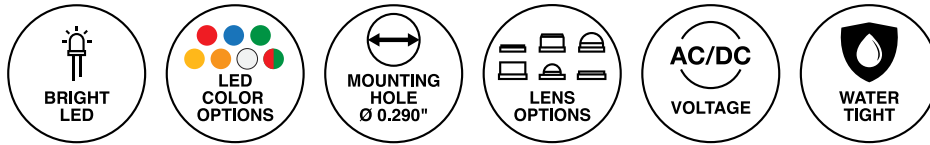




# 90 Series 0.290" (7.37mm) LED Panel Mount Indicator



90 Series with built-in long life LED offer superior construction and longer life  
Cartridge, bi-pin and wire leads termination styles



## Key features

- Built-in LED can be used with DC circuits (5 to 60 VDC) or 120VAC circuits
- Terminal Styles: cartridge, bi-pin and wire leads (6" 24 AWG wire leads)
- Available with a variety of LEDs including AlInGaP and InGaN technology for high brightness applications, bi-color and with integrated resistors
- Available in six LED solid colors: red, green, white, blue, amber, orange and in one bi-color: red/green with or without lens
- Seven lens colors available: red, amber, yellow, green, blue, water clear and smoke
- Offered with a variety of lens options: cylindrical, flush, dome, wide cylindrical or wide flush, all featured with fresnel pattern lens which provide excellent light focus and assure maximum light output
- Spring retainer clip and washer (included) secures uniform placement of the indicator to the panel and is ideal for high vibration environments
- Offered with white or black bezel, where the black bezel enhances LED contrast
- Resistant to shock and vibration
- Mounting hardware provided (spring retainer clip and washer)
- Watertight socket options for splashdown environments
- For use with spring retainer clip (included), socket holder (PS90 or PS90T - sold separately) or wiring plug (SH90 or CSH90 - sold separately)
- Compliant with RoHS and REACH

# Ordering Data

TO ORDER, FOLLOW THE EXAMPLE

Part Number: **94-LRG12H-CW0**

Mounting hardware included

Select one **BOLD** component from each numbered category in the tables below.

<b>1</b>	Model	<b>2</b>	LED	<b>3</b>	Voltage	<b>4</b>	Lens Diffusion	<b>5</b>	Lens Color	<b>6</b>	Bezel Color
	<b>94</b>		<b>-LRG</b>		<b>12H</b>		<b>-C</b>		<b>W</b>		<b>0</b>

## Standard Intensity - Diffused Encapsulation

LED	Color	$\lambda_{pk}$ (nm)	$I_v^{[1]}$ (mcd)	Viewing Angle	V/C Table <sup>[2]</sup>
<b>-BR<sup>[4]</sup></b>	RED	626	6.1	60	I
<b>-BA<sup>[4]</sup></b>	AMB	585	6.5	60	I
<b>-BG<sup>[4]</sup></b>	GRN	569	4.7	60	I

## Medium Intensity - Tinted Encapsulation

LED	Color	$\lambda_{pk}$ (nm)	$I_v^{[1]}$ (mcd)	Viewing Angle	V/C Table <sup>[2]</sup>
<b>-BCR</b>	RED	626	60	35	I
<b>-BCA</b>	AMB	585	60	35	I
<b>-BCG</b>	GRN	569	70	24	I

## High Intensity - Waterclear Encapsulation

LED	Color	$\lambda_{pk}$ (nm)	$I_v^{[1]}$ (mcd)	Viewing Angle	V/C Table <sup>[2]</sup>
<b>-NWR</b>	RED	634	2800	30	I
<b>-NWO</b>	ORG	605	2000	30	I
<b>-NWA</b>	AMB	592	7500	30	I
<b>-NWG</b>	GRN	520	6500	30	II
<b>-NWB</b>	BLU	465	700	45	II
<b>-NWW<sup>[8]</sup></b>	CWHT		6150	30	II
<b>-NWL<sup>[8]</sup></b>	WWHT		4700	30	II
<b>-NKR</b>	RED	634	3600	15	I
<b>-NKO</b>	ORG	605	8000	15	I
<b>-NKA</b>	AMB	592	3600	15	I
<b>-NKG</b>	GRN	520	10000	15	I
<b>-NKB</b>	BLU	465	9300	20	II
<b>-NKW<sup>[8]</sup></b>	CWHT		27000	20	II
<b>-NKL<sup>[8]</sup></b>	WWHT		9200	15	II

## Specialty LEDs - Diffused Encapsulation

LED	Color	$\lambda_{pk}$ (nm)	$I_v^{[3]}$ (mcd)	Viewing Angle	V/C Table <sup>[5]</sup>	Description
<b>-RLP<sup>[7]</sup></b>	RED	634	2.3	50	[5]	Low Power
<b>-ALP<sup>[7]</sup></b>	AMB	583	2.1	50	[5]	Low Power
<b>-GLP<sup>[7]</sup></b>	GRN	565	2.3	50	[5]	Low Power
<b>-LRG<sup>[8]</sup></b>	RED/GRN	568/640	60/200	35	I	Bi-Color, Red Cathode

**1**

	Cartridge	Bi-Pin	Wire Leads
Black Housing	<b>C<sup>[1]</sup></b>	<b>905<sup>[2]</sup></b> -No lens <b>91</b> -Cylindrical <b>94</b> -Flush <b>96</b> -Dome	<b>W</b>
White Housing		<b>961</b> -Wide cylindrical <b>964</b> -Wide flush	

## Voltage/Current

Design Vf/If	Max Vf/If
<b>V/C Table I</b>	
5V/22mA	5.5V/28mA
12V/20mA	14V/25mA
15V/24mA	16.5V/28mA
24V/17mA	26V/20mA
28V/16.5mA	30V/18mA
48V/15mA	50V/16mA
60V/9mA	65V/10mA
120VAC/3.5mA	130VAC/4mA

**3**

## Voltage<sup>[6]</sup>

**2**  
**5H**  
**12H**  
**15H**  
**24H**  
**28H**  
**48H**  
**60H**  
**120<sup>[9]</sup>**

## Voltage/Current

Design Vf/If	Max Vf/If
<b>V/C Table II</b>	
5V/15mA	5.5V/23mA
12V/15mA	14V/20mA
15V/15mA	16.5V/18mA
24V/15mA	26V/18mA
28V/15mA	30V/17mA
48V/9.5mA	50V/10mA
60V/7mA	65V/8mA
120VAC/3.5mA	130VAC/4mA

**4**

## Lens Diffusion

**-C**  
Clear  
**-N**  
Diffused

**5**

## Lens Color

**R**  
Red  
**A**  
Amber  
**Y**  
Yellow  
**G**  
Green  
**B**  
Blue  
**W**  
Water Clear  
**-S**  
Smoke [10]

**6**

## Bezel Color

**0**  
Black  
**9**  
White

[1] For panel lights mounted in the PS90 or PS90T socket (pg. 5). Mounting hardware is included with the socket. Do not select the W option. C and standard pins are not solderable.

[2] Model 905 has no lens. Omit Lens Diffusion and Color (e.g. 905-BG5H-O).

[3]  $I_v$  = typical luminous intensity @  $I_f = 20mA$  ( $T_a = 25^\circ C$ ).  $I_v$  is measured without lenses. For Low Power LEDs,  $I_f = 2mA$ .

[4] Use with Model 905 only.

[5] See Voltage/Current table for design specifications. Design current for low power LEDs = 2mA.

[6]  $T_a = 25^\circ C$ . Voltage "2" indicates external resistor required. Voltages 5H through 60H are VDC. For AC operation, insert D after Voltage (e.g. 24HD). D indicates built-in rectifier, not required for 5H or 120VAC. DC operation not available for 120V. Bi-Color not available in AC voltages.

[7] Omit H when selecting a voltage (e.g. 91-RLP12-CWO).

[8] Select -CW or -NW Lens only.

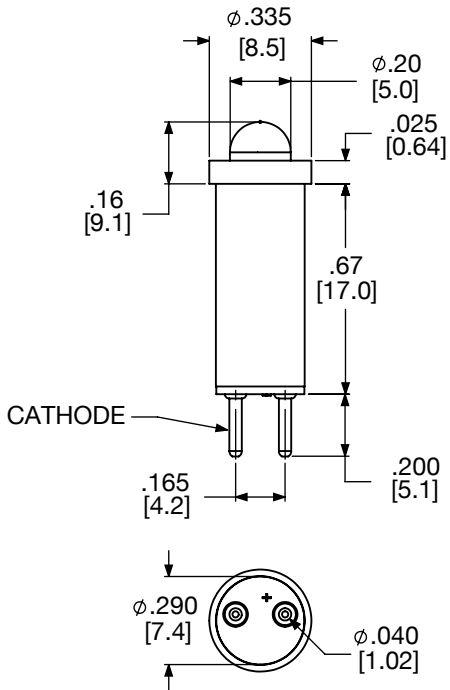
[9] Select high intensity LEDs only.

[10] Omit Lens Diffusion when selecting smoked lens (e.g. 91-NWG24H-S0).

# Product Dimensions

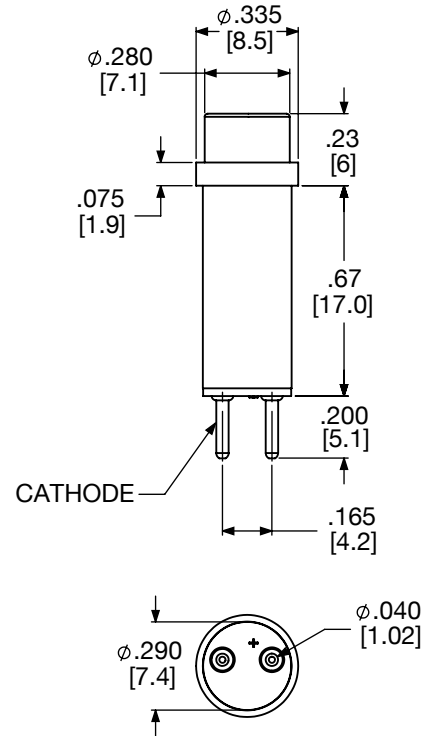
## 905<sup>[1]</sup>

### No Lens - Black Housing



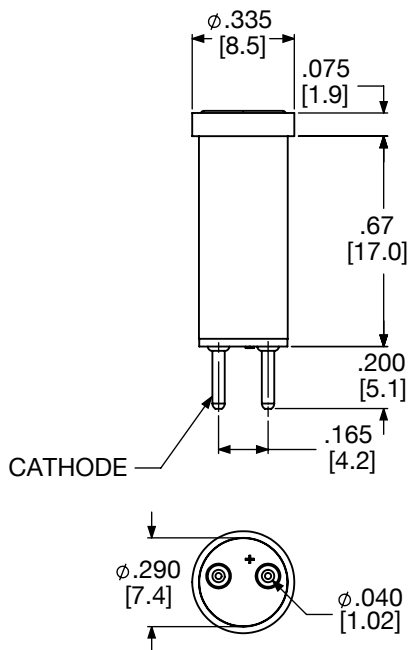
## 91<sup>[1]</sup>

### Cylindrical Fresnel Lens - Black Housing



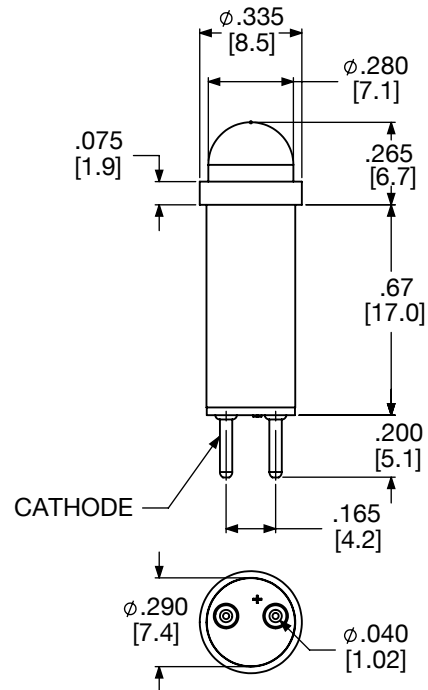
## 94<sup>[1]</sup>

### Flush Fresnel Lens - Black Housing



## 96<sup>[1]</sup>

### Dome Lens - Black Housing



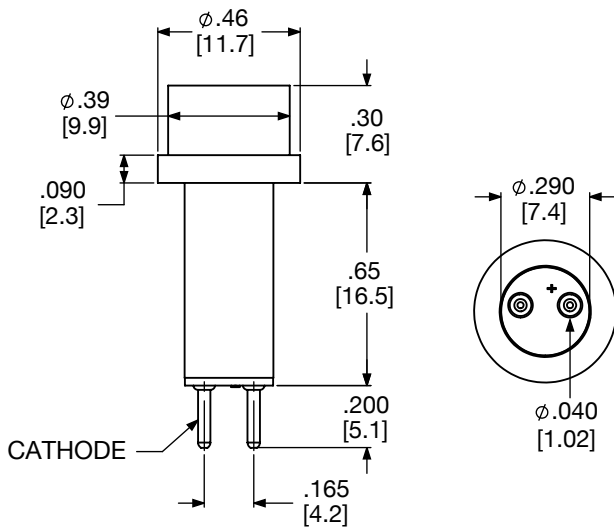
[1] Dimensions for cartridge and bi-pin

Dimensions in inches [mm]

# Product Dimensions

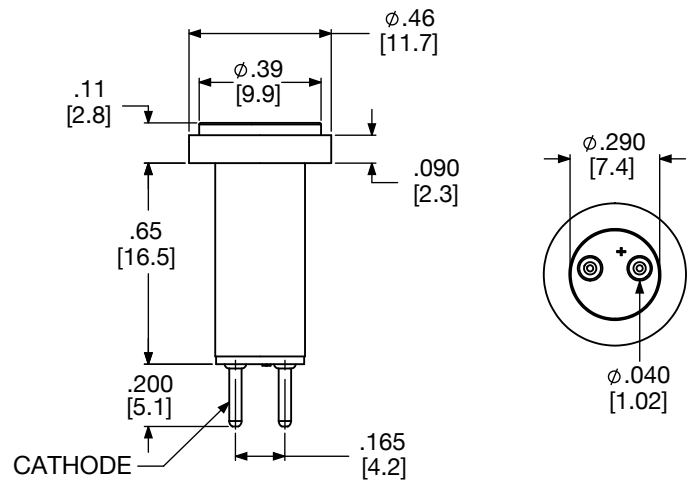
## 961<sup>[1]</sup>

### Wide Cylindrical Fresnel Lens - White Housing



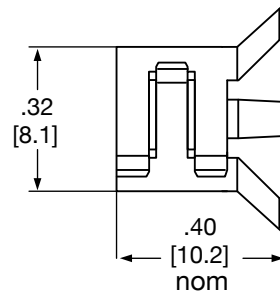
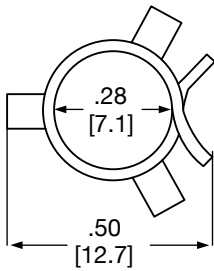
## 964<sup>[1]</sup>

### Wide Flush Fresnel Lens - White Housing

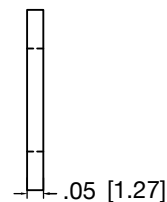
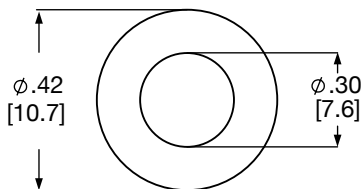


## Mounting Hardware (included)

### TC9-R- Spring Retainer Clip



### NW5 Mounting Washer



Hardness: 60 Shore A

[1] Dimensions for cartridge and bi-pin

Dimensions in inches [mm]

# Accessory Options (order separately)

## Lens, Retaining Collar, Wiring Plug for 90 Series

TO ORDER, FOLLOW THE EXAMPLE

Part Number: **L92-CR**

- Mounting Hole Diameter: Ø.375" - Ø.385"

- Panel Thickness: Max: 0.80"

Select one **BOLD** component from each numbered category in the tables below.

<b>1</b>	Model	<b>2</b>	Lens Diffusion	<b>3</b>	Lens Color
	<b>L92</b>		<b>-C</b>		<b>R</b>

### 90 Series Sockets & Hardware

<b>1</b>	Model	Description	Mating Components
	<b>L92</b>	90 Series Lens	C905
	<b>PS90<sup>[1]</sup></b>	90 Series Socket, Solder Terminals	C905, C91, C94, C96, C961, C964
	<b>PS90T<sup>[1]</sup></b>	90 Series Socket, Turret Terminals	C905, C91, C94, C96, C961, C964
	<b>RC90-R-</b>	Retaining Collar	PS90, PS90T
	<b>RC90-B-R-</b>	Retaining Collar (Black)	PS90, PS90T
	<b>SH90</b>	Wiring Plug	Wiring Plug
	<b>CSH90</b>	Wiring Plug with collar	905, 91, 94, 96, 961, 964, C905, C91, C94, C96, C961, C964
	<b>TC9-R-</b>	90 Series Spring Retainer Clip <sup>[3]</sup>	905, 91, 94, 96, 961, 964, C905, C91, C94, C96, C961, C964
	<b>NW5</b>	Mounting Washer (neoprene) <sup>[3]</sup>	905, 91, 94, 96, 961, 964, C905, C91, C94, C96, C961, C964

### 90 Series Lens

(For use with PS90 or PS90T Socket with Model C905 Panel Light)

<b>1</b>	Model	<b>4</b>	Lens Diffusion	<b>5</b>	Lens Color
	<b>L92</b>		<b>-C</b> Clear		<b>R</b> Red
			<b>-N</b> Diffused		<b>A</b> Amber
					<b>Y</b> Yellow
					<b>G</b> Green
					<b>B</b> Blue
					<b>W</b> Water Clear
					<b>-S</b> Smoke [2]



RC90-R-



SH90



L92

[1] Hardware Assembled, for watertight option see page 6

[2] Omit Lens Diffusion Code (e.g. L92-S).

[3] Mounting hardware included

# Watertight Accessory Options (order separately)

## Watertight Sockets for model C905 or 905

TO ORDER, FOLLOW THE EXAMPLE

Part Number: **PS90T-L92-CY-WT**

Select one **BOLD** component from each numbered category in the tables below.

- For Splash Down Environments (not submersible)
- Mounting Hole Diameter:  $\varnothing.375''$  -  $\varnothing.385''$
- Panel Thickness: Max: 0.80''

1	Socket Model	2	Lens Model	3	Lens Diffusion	4	Lens Color	5	Water Tight
	<b>PS90</b>		<b>-L92</b>		<b>-C</b>		<b>Y</b>		<b>-WT</b>

1	Socket Model	2	Lens Model	3	Lens Diffusion	4	Lens Color	5	Water Tight
	<b>PS90</b> <b>PS90T</b>		<b>-L92</b>		<b>-C</b> Clear <b>-N</b> Diffused		<b>R</b> Red <b>A</b> Amber <b>Y</b> Yellow <b>G</b> Green <b>B</b> Blue <b>W</b> Water Clear <b>-S</b> Smoke [1]		<b>-WT</b>



PS90-L92-S-WT



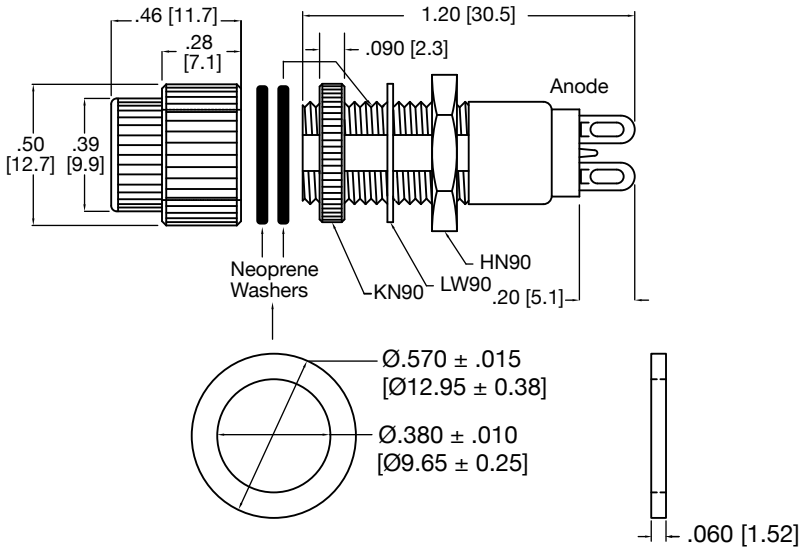
PS90T-L92-NG-WT

[1] Omit Lens Diffusion Code (e.g. PS90T-L92-S-WT).

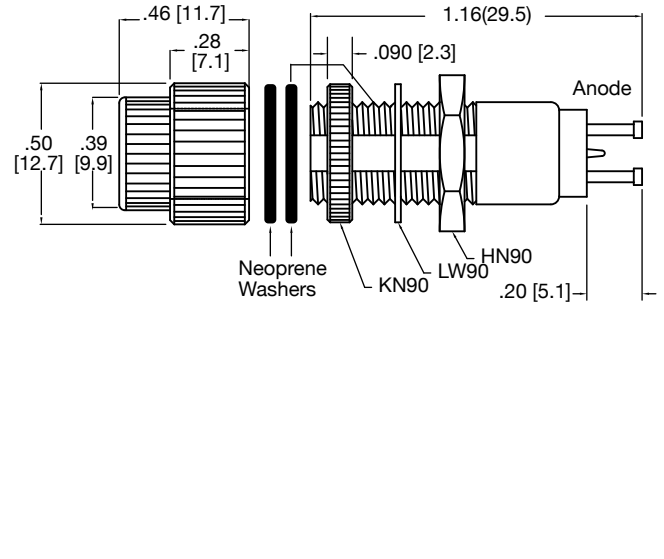
Dimensions in inches [mm]

# Accessory Product Dimensions

## PS90, Watertight

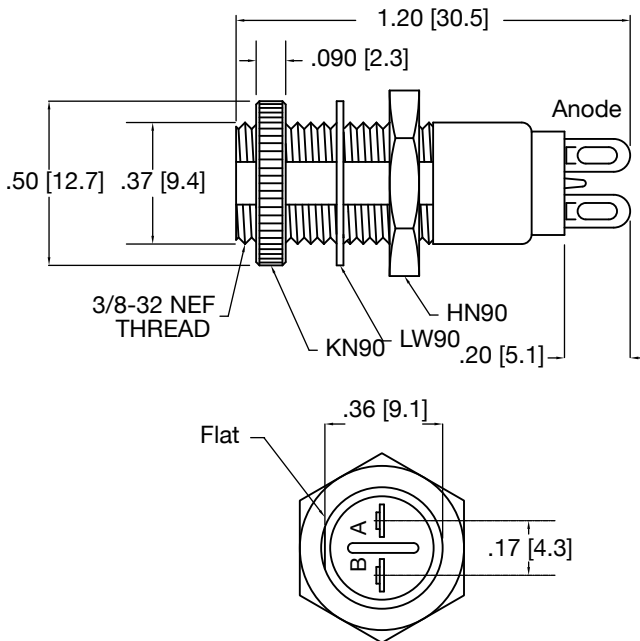


## PS90T, Watertight



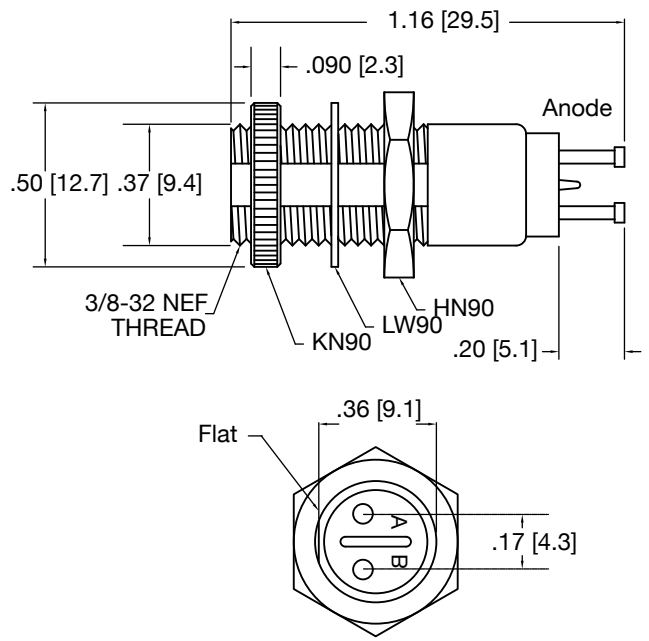
## PS90

### 90 Series Socket, Solder Terminals



## PS90T

### 90 Series Socket, Turret Terminals



### Mounting Hole Diameter

$\text{Ø} 0.375''/0.385''$  [ $\text{Ø} 9.525/9.779$ ]

### Maximum Panel Thickness

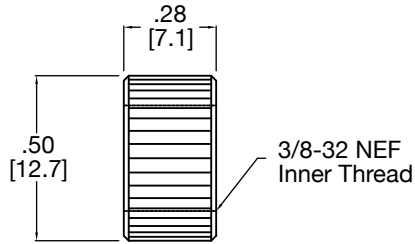
Max: 0.80" [20.32]

Dimensions in inches [mm]

# Accessory Product Dimensions

## RC90-R- (aluminum) RC90-B-R- (black anodized aluminum)

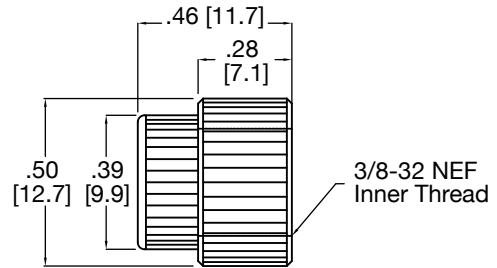
Retaining Collar for PS90 and PS90T



Only for use with PS90, PS90T

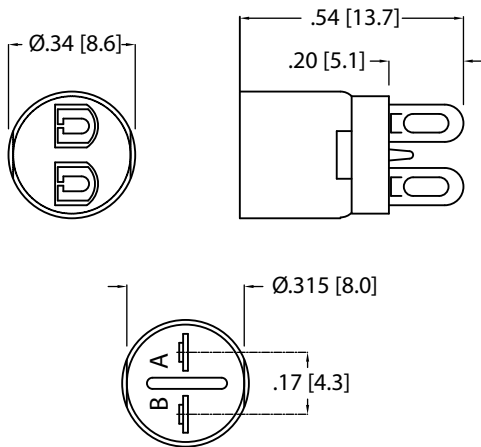
## L92

90 Series Lens for PS90, PS90T socket  
and C905, 905



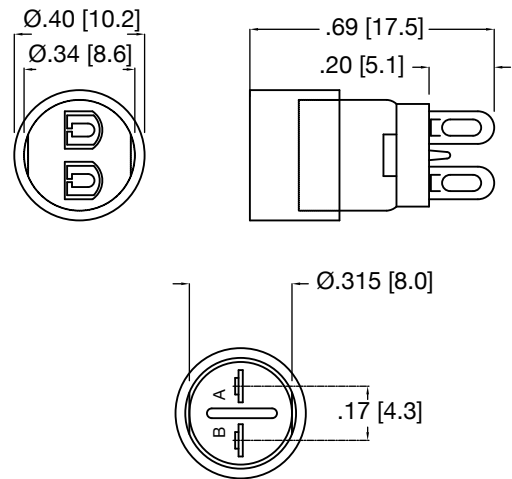
## SH90

Wiring Plug



## CSH90

Wiring Plug with Collar



Dimensions in inches [mm]



## Product Specifications

Materials	
Housing	Black nylon, except 961 & 964 which are white nylon
Lens	Lexan
Pin	Brass
Wire Leads	Tinned copper conductor TPB insulation
TC9-R-	High carbon spring steel zinc plate finish
NW5	Black neoprene
RC90-R-	Aluminum
RC90-B-R-	Black Anodized Aluminum

Installation Specifications	
Mounting Hole	0.290" to 0.291" [7.37 to 7.39]
Panel Thickness	0.25" max
Wire Leads	24 AWG - 300V lead color: red and black 6.0" long min stripped 0.5" nom red anode/black cathode, 24 AWG TPB UL1061 insulation. Contact sales for other lengths, gauges and colors.

Temperature Specifications	
Operating Temperature	-30°C to 60°C
Storage Temperature	-40°C to 100°C

Dimensions in inches [mm]

## Compliances and Approvals



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[NL177WL3G](#) [NL276C2A](#) [NL2950BWL3G](#) [NL589WL2R](#) [NL67C2C](#) [NL67C3R](#) [C480AABG3](#) [PB22BM41K](#) [PB22SIM40Y](#)  
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[556-1705-809F](#) [556-3008-839F](#) [558-0201-818F](#) [559-0001-813F](#) [559-1301-801F](#)